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NASA Procedural Requirements

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 (NASA Only)

Subject: Facility Project Requirements

Responsible Office: Facilities Engineering and Real Property Division[| TOC](#) | [Preface](#) | [Chapter1](#) | [Chapter2](#) | [Chapter3](#) | [Chapter4](#) | [Chapter5](#) | [AppendixA](#) |
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Chapter 1. NASA's Facilities Program

1.1 Facility Program Content

The annual facility program is part of the Agency's five-year budget described in NPD 1000.0, Strategic Management & Governance Handbook (see <http://nodis3.gsfc.nasa.gov/>). The five-year budget includes the Construction of Facilities (CoF) program under the Institutional Investment account. The CoF program comprises funds for four project types:

1.1.1 **Discrete Projects** -- Discrete Projects are projects with an estimated construction cost of \$5 million or more.

1.1.2 **Minor Revitalization and Construction Projects (MRCs)** -- MRCs are projects with an estimated construction cost of at least \$500,000 and up to \$5 million.

1.1.3 **Demolition Projects** -- Demolition Projects are projects eliminating real property assets no longer required by NASA.

1.1.4 **Facility Planning and Design (FP&D)** -- FP&D are funds used to plan and design facility projects.

1.2 Facility Program Best Practices

Centers shall comply with NASA-accepted best practices regardless of fund source (e.g., NASA Program, Institutional Investment Account, or third-party funded). The accepted best practices include the following:

- a. Front-end planning to define project requirements using comprehensive planning tools such as the PDRI, team building, and other techniques.
- b. Site investigation and sufficient preliminary design to fully develop project scope, assess risks, identify construction complexities, and provide a realistic cost estimate prior to inclusion into the NASA budget submission to OMB.
- c. Use of life-cycle cost vs. first cost to select project systems, equipment, materials, and methods.
- d. Designing for maintainability to optimize operation and maintenance costs and effort.
- e. Commissioning installed equipment, systems, building envelope, and other building elements to ensure quality, reliability, and systems integration.
- f. Using environmentally friendly processes, materials, and equipment. When a project includes demolition, maximize reuse vs. disposal.
- g. Applying constructability concepts and principles during each phase of the facility project process to ensure the project execution remains practical.
- h. Using partnering tools and techniques to establish and maintain professional working relationships among project

stakeholders (including, but not limited to, users, contractors, and construction managers).

- i. Practicing effective configuration and change order control to minimize project cost and schedule growth.
- j. Using United States Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) concepts.
- k. "Making Zero Incidents a Reality" -- a safety initiative encouraging proactive safe behavior during the construction phase.

1.3 CoF Program Formulation

NASA Centers and Headquarters formulate the CoF program through a collaborative process. The following paragraphs and Figure 1-2, CoF Program Management, describe this process.

1.3.1 Guidance -- Each year, NASA's Office of the Chief Financial Officer (OCFO) issues guidance to the Centers for reporting their budget requests. The OCFO coordinates this through the Mission Directorates and Mission Support Offices.

1.3.2 Establishing Project Scope -- Each project must have clearly defined goals and objectives (see Appendix A, Definitions, "full disclosure concept"). Federal appropriations require "Full Funding" (see OMB Circular A-11, Section 31.6). "Full Funding" means the project budget includes sufficient funds to complete a useful segment of a capital project (investment) before any funds are obligated for that segment. Budget requests for acquisition of capital assets must propose "Full Funding."

1.3.3 Fragmentation -- NASA Centers have no authority to fragment facility projects or circumvent the CoF approval process. In establishing a project scope, a NASA Center must include all of the necessary elements in a single project to avoid fragmentation or the appearance of fragmentation. (See Appendix A, Definitions, "fragmentation," "facility project," and "full disclosure concept" definitions). For multiple projects within one facility, there shall be at least 90 days separation between beneficial occupancy of one project and the award of any subsequent project.

1.3.4 Incremental Programming for Facility Requirements -- Incremental programming for facility requirements is a process to plan and execute CoF funding over more than one fiscal year for a specific purpose. Incremental programming differs from fragmentation in that it fully discloses the overall plan. The Director, FERPD must approve incremental programming for facility requirements before inclusion into any Center's five-year plan. Incremental funding requests shall include a reasonable explanation for the action, an overall schedule including major milestones, total estimated costs, planned scope, and objectives.

1.3.4.1 The Center CoF program manager shall provide incremental planning project documents to FERPD for review. These planning documents must include the following:

- a. The total estimated cost of the completed incremental project (all phases).
- b. The estimated cost of this project phase for the planned budget year.
- c. The costs of previously approved or budgeted project phase(s).
- d. The planned costs of each future project phase by fiscal year.
- e. Whether or not this particular project phase will yield a usable facility or portion thereof.

1.3.5 Budget Request (Five-Year Plan) -- Centers shall develop and submit a Budget Request (Five-Year Plan) in accordance with the annual guidance issued through the NASA OCFO (see paragraph 1.3.1 and Figure 1-1). Prior to this guidance, FERPD issues a data call with guidance and reporting requirements to the Centers. FERPD, Centers, and other Headquarters offices prioritize the CoF program Agency wide using the Centers' submitted data.

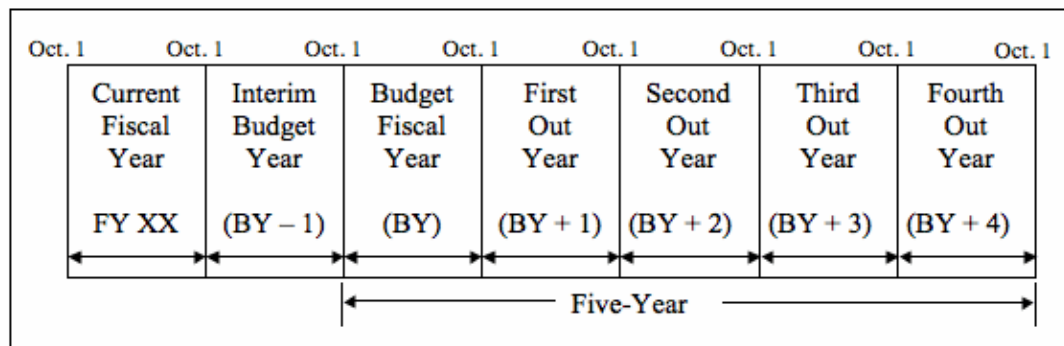


Figure 1-1 CoF Five-Year Plan

1.3.6 Documentation -- NASA Form 1509, Facility Project-Brief Project Document, and NASA Form 1510, Facility Project Cost Estimate are required for all CoF projects requested for inclusion in the Budget Year (BY). Discrete CoF projects also must have a Life-Cycle Cost Analysis (LCCA) and a draft budget narrative (see http://www.hq.nasa.gov/office/codej/codejx/Assets/Docs/Case_Guide_4-20-06.pdf).

1.3.7 Headquarters Review and Prioritization -- The Headquarters Office of Infrastructure and Administration, FERPD shall lead the review and prioritization of institutional facility projects submitted in the Headquarters five-year Plan based upon the Centers' response to the annual guidance. This review will include an evaluation of existing capabilities to minimize or eliminate the creation of excess capacity within NASA or the private sector (e.g., construction of a ground-based test facility at a particular Center when there is adequate availability and capability to accomplish the same requirements at a different Center or in the private sector). For facilities projects funded from other sources (e.g., program direct, third party), FERPD and the associated Mission Directorate coordinate the process.

1.3.8 Public Release -- Until released by the appropriate committees of Congress, there shall be no public disclosure of CoF project information (including subprojects and/or work packages).

1.3.9 CoF Program Approvals -- Figure 1-2 depicts the CoF program approval process. The CoF program is part of the annual appropriations submitted to OMB by NASA.

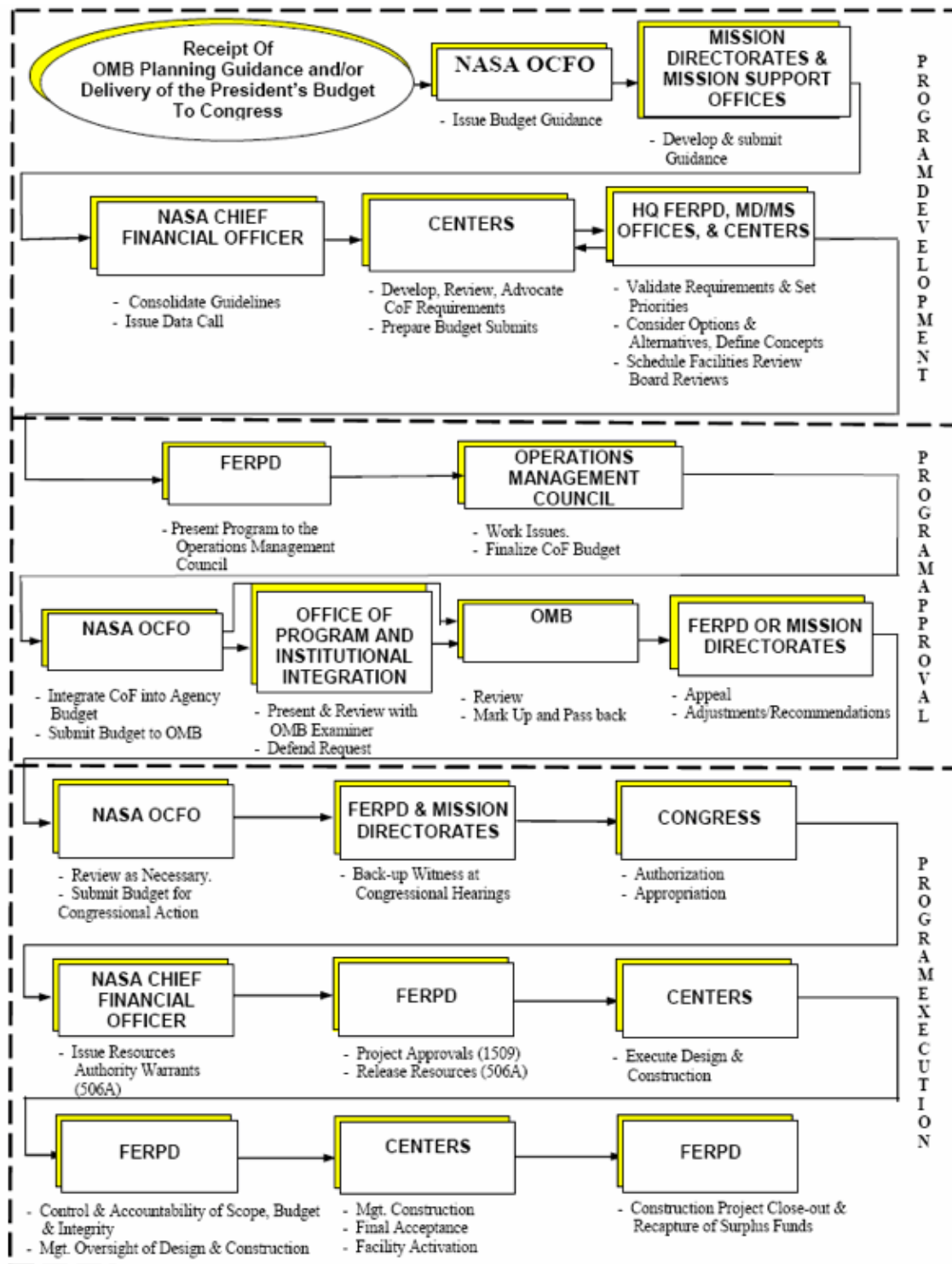


Figure 1-2 CoF Program Management

1.3.10 NASA Headquarters -- Based upon the five-year plans submitted by the Centers, NASA Headquarters prepares and submits the draft appropriation request to OMB. This requires coordination with the OCFO, Mission Directorates, Mission Support Offices, and Center Management. The NASA Administrator, through the OCFO, is responsible for NASA's appropriation request.

1.3.11 OMB Review -- OMB reviews NASA's five-year Plan and responds with changes, comments, and questions via a "passback." After NASA answers the passback, OMB provides a "markup" for use in preparing NASA's final submission. Using the OMB budget markup, NASA prepares and submits a final budget appropriation request to OMB. Following final approval, OMB incorporates NASA's planned budget into the President's budget for submission to Congress.

1.3.12 Facility Project Authorization and Appropriations -- Using the President's budget as a starting point,

committees in the Senate and House of Representatives develop the authorization and/or appropriation bills. The Congress approves and sends the bill(s) to the President for review and action. The bill becomes public law (or act) once the President has approved it.

1.3.13 Program Oversight -- As the CoF program proceeds through the authorization and appropriation process, NASA Headquarters (OCFO, FERPD, Mission Directorates, and Mission Support Offices) will inform the Centers concerning the status of proposed facility projects.

1.3.14 Program Execution -- Execution is the process of obligating and managing contracts to accomplish project objectives. To "obligate" funds on a project means to award a contract or purchase order. NASA HQ FERPD has set goals of obligating 90 percent of CoF projects and 80 percent of their associated budget of that fiscal year. (See NPD 8820.2, Design and Construction of Facilities at <http://nodis3.gsfc.nasa.gov> and Self-Assessment Metrics in Appendix C). Early obligation of CoF projects is encouraged, and late obligation could place a project at risk to lose project funding. (See Appendix A, Definitions, "at-risk project"). The following paragraphs describe facility program execution, and Figure 1-2 depicts this process.

1.3.15 Financial Resources for Facility Projects -- The annual appropriations acts contain the principal funding authorities for CoF projects. This funding supports preliminary engineering, design, and construction of those projects. Identifying, planning, and developing the requirement into a proposed project and its activation after construction are paid for using non-CoF funds (see Figure 1-3, Facilities Project Activities and Funding). The FPM may use non-CoF funds, as authorized and appropriated within annual appropriations and authorization acts, for engineering, planning, design, construction, and activation of CoF projects. In some instances, another Federal agency, State or local government, or other party will finance facility work at a Center through Agency agreements, the private sector as specified in contracts, or a nonappropriated fund activity such as a NASA Exchange. Regardless of the source of funds, approval authority must comply with [NPD 7330.1](#), Approval Authorities for Facility Projects.

1.3.16 Facility Project Fiscal Management

1.3.16.1 CoF Thresholds -- See paragraph 1.1 for current CoF fund types and associated thresholds. The annual appropriation legislation is the only accepted source for adjustments to CoF thresholds.

1.3.16.2 Project Approval and Documentation -- The authorities and responsibilities identified in [NPD 7330.1](#), Approval Authorities for Facility Projects, apply to all facilities projects, regardless of fund source. Each facility project estimated to cost \$100,000 or more must have an approved [NASA Form 1509, Facility Project-Brief Project Document](#), and [NASA Form 1510, Facility Project Cost Estimate](#), prior to obligating funds on that project. The facility project manager shall prepare these documents in accordance with the instructions in Appendix C, Forms and Instructions. Approval requirements vary according to the types of funds expended as follows:

a. Center-Approved and -Funded Projects -- Center-Approved and -Funded Projects are projects with an estimated cost of less than \$500,000. Centers approve and fund these projects; however, FERPD reviews [NASA Forms 1509](#) and [1510](#) for projects estimated to cost \$100,000 or more for compliance with the NASA policy.

b. Facility Planning and Design Funds (FP&D) -- Based on the results of the prioritization process, FERPD authorizes projects for design and provides funds to accomplish planning and design of CoF projects. Center CoF Managers request funds and approval via the CoF Routine Transaction Form, and FERPD replies with authority to design using the same form.

c. MRC Projects and Discrete Projects -- Centers request project approval by sending the signed version of the [NASA Forms 1509](#) and [1510](#) to FERPD using the CoF Routine Transaction Form. FERPD reviews and approves the project and the expenditure of discrete or minor funds by signing and obtaining signatures on the NASA Form 1509. FERPD transmits copies of the signed forms, notification of funding, and approval authority using the CoF Routine Transaction Form. For MRC projects, FERPD communicates provisions for increasing expenditures on the Minor Facility Projects Summary Brief Project Document, [Form 800/02](#), at the time of issue.

d. Third-Party Funded Facilities Projects -- Funding approval and authority must comply with the party providing funds; however, NASA approval requirements still must comply with [NPD 7330.1](#), Approval Authority for Facilities Projects (see <http://nodis3.gsfc.nasa.gov>). Centers request approval by sending [NASA Form 1509](#) and [1510](#) to the Director, FERPD for review and approval.

1.3.16.3 Requesting Funds -- Center CoF Managers shall use the CoF Routine Transaction Form with NASA Forms 1509 and 1510 attached for each project to request funds.

1.3.16.4 Receipt of Funds -- After project approval is complete, FERPD transmits funding to the Centers electronically through NASA's financial system. Centers shall award CoF contracts only upon receiving approval authority and funds.

1.3.16.5 Procurement -- When professional services, such as a design by an Architect Engineer (A-E) firm or a construction contractor for construction, are required, the contract acquisition shall comply with the FAR and NASA FAR supplement.

1.3.16.6 Project Design -- Center Project Managers must design facility projects in accordance with Chapter 3, Design. Design documents shall be prepared by or under supervision of registered or certified professional engineers or architects. However, the Center Director or designee has the authority to waive this requirement if he/she is satisfied the technical design is being performed by qualified personnel. If this requirement is waived, it must be in writing, signed by the Center Director or designee, and filed in the project folder.

1.3.16.7 Project Design Approval -- The Center Director or designee shall indicate technical approval by signing the design documents. This approval certifies that the design meets the scope (capability, schedule, and cost) of the approved project as described on the project documents. In addition to specific project goals and objectives, the following apply to facility projects:

- a. **14 CFR Part 1216**, Environmental Quality, requires an environmental analysis for each project and an environmental assessment for each discrete project unless the action is one normally requiring an environmental impact statement or the action is categorically excluded.
- b. **10 CFR Part 434**, Energy Code for New Federal Commercial and Multi-Family High Rise Residential Buildings, establishes energy conservation performance standards that are mandatory for design of federal buildings.

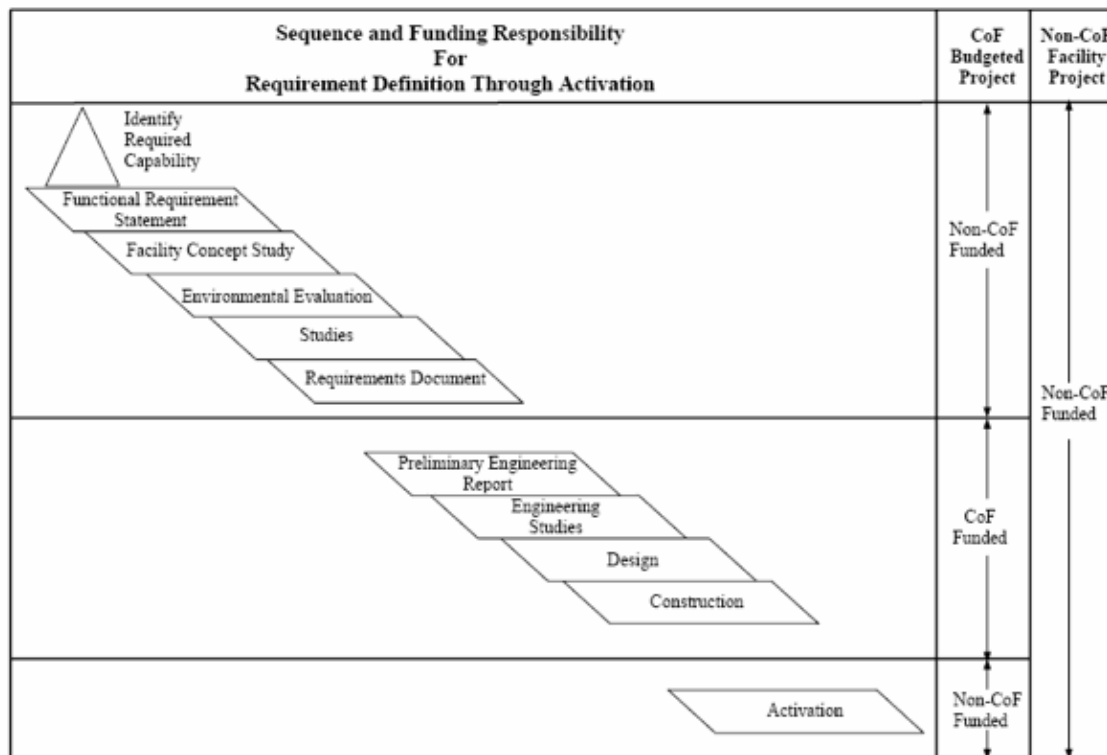


Figure 1-3 Facilities Project Activities and Funding

1.3.17 Program Reporting Requirements -- Center CoF Managers shall maintain records for each CoF project and report the following:

1.3.17.1 Quarterly Report -- Unless the Headquarters program manager has access to current project status via a Center electronic project management system, the Center CoF Manager shall report quarterly updates to the Headquarters program manager. At a minimum, the report will include the following:

- a. Program-related requirements, such as capability, schedule, cost.
- b. A 30-percent and 90-percent design milestones including estimated and actual start, review dates, and completion dates.
- c. Construction milestones, including estimated and actual start dates, work packages, phases, commissioning, activation, beneficial occupancy, and closeout.
- d. Funds management for design and construction: Budget amount (requested during the budget formulation phase), Current Cost Estimate, funds received, funds committed, funds obligated.
- e. Outstanding issues, such as significant change orders, safety concerns, or cost overruns and the plans to mitigate these actions.

1.3.17.2 Functional Performance Metrics -- On November 1 of each year, CoF Managers shall report functional

performance metrics as requested and communicated by FERPD. See Appendix_C, CoF Self Assessment Metric Form.

1.3.17.3 Sustainability Reporting Requirements -- NASA Centers shall submit an annual report of their progress toward implementing sustainability goals. FERPD will request and transmit reporting requirements annually, but the following represent the minimum requirements:

- a. Total number of new design projects initiated during the fiscal year.
- b. Total number of new designs eligible for LEED registration.
- c. Number of new design projects registered for LEED certification and at what level (i.e., Certified, Silver, Gold, or Platinum).
- d. Number of completed construction projects eligible for LEED certification and number of completed construction projects achieving LEED certification and at what level (i.e., Certified, Silver, Gold, or Platinum).

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